4.2 IMPACTS ON GEOLOGY AND SOILS

Development of the Proposed Action or its alternatives would result in considerable land disturbance and the construction of a new peninsula. This section considers the potential impacts of these development activities on erosion and sedimentation, and mineral extraction. The ROI used to evaluate impacts includes the sites of the Proposed Action and its alternatives, areas subject to dredge and fill activities, and the three-county region.

4.2.1 Impacts on Soils and Sedimentation

4.2.1.1 Direct Impacts

The potential direct impacts of the Proposed Action and its alternatives on soils and sediments would include sedimentation and erosion impacts produced by land preparation and construction activities, and changes in sediment quality in the Mississippi Sound or Back Bay that would result from operational activities. Section 4.3 discusses the environmental impacts of proposed dredge and fill operations, as well as the impact of soil conditions on increased septic use in the coastal region.

Alternatives 2, 3, 4, and 5

During grading, filling, and construction activities associated with Alternatives 2, 3, 4, and 5, erosion of surface soils would increase beyond current levels. This erosion, however, would be temporary and the transport and deposition of sediments would be minimized by erosion control measures. MDEQ would regulate on-site activity through the NPDES construction permit process. Development would require a stormwater pollution prevention plan, which identifies potential sources of non-point pollution and ensures the use of practices satisfying the *1994 Mississippi Planning and Design Manual for the Control of Erosion, Sediment, and Stormwater.* This plan would limit the adverse impacts of sediment transport into adjacent waters. Surface erosion would be minimal after completion of construction and would have no continuing environmental impacts on site soils.

During operational phases, sediment quality in the Mississippi Sound or Back Bay could be affected by runoff from new impervious surfaces and increased boating activity. Section 4.3 identifies pollutant amounts associated with site runoff. As shown in Appendix D, however, the use of stormwater quality devices would reduce these runoff impacts.

The Proposed Action and its alternatives would include development of new marina slips. The resulting increase in boat traffic would introduce additional metals, VOCs, and other chemicals into the sediment system of the Mississippi Sound or Back Bay. In addition, refueling activities, incidental fuel spillage, and boat fuel discharges would increase hydrocarbon levels in sediments. These effects could have an ongoing but minor negative impact on sediment quality in the vicinity of the marina. Further, as part of the Broadwater marina basin restoration proposed under Alternative 2, existing poor quality marina sediments would be capped with clean dredged

material. This measure would seal off potential contaminants from the open environment in the Sound.

No-Action Alternative

Under the No-action Alternative, some rehabilitation and facility additions could occur at the existing Broadwater site. These improvements could result in grading, filling, and construction activities and increased soil erosion and sedimentation. Possible erosion levels, however, would be more limited than those generated by Alternatives 2, 3, 4, and 5, and the effects would be controlled by required erosion mitigation practices. The No-action Alternative, therefore, would have a minor impact on site soils.

The No-action Alternative would not produce any ongoing sediment quality impacts in the Mississippi Sound by increasing stormwater pollutant loadings or creating additional boat traffic at the marina. This alternative, however, also would not achieve improvements in sediment quality associated with enhanced stormwater quality management. The existing marina, with its poor circulation and lack of BMPs, would continue to contribute to poor sediment quality. Additionally, under the No-action Alternative, existing poor quality marina sediments would not be capped and would, therefore, remain in circulation.

4.2.1.2 Indirect Impacts

The potential indirect impact of the Proposed Action and its alternatives would be an increase in sedimentation and erosion resulting from commercial redevelopment around the project sites, and secondary growth in the three-county region.

Alternative 2, 3, 4, and 5

Construction activity from the redevelopment of parcels adjacent to the Broadwater site or Alternative 3 sites would likely increase sedimentation and erosion. Required stormwater pollution prevention measures, however, would reduce these impacts.

Under Alternatives 2, 3, 4, and 5, secondary growth and its associated development activity would also increase sedimentation and erosion across the three-county region. State and local regulations, however, could offset the impacts of this increased erosion.

No-Action Alternative

Under the No-action Alternative, some facility renovations and additions could occur, triggering development on surrounding parcels. This induced development would not be of the magnitude generated by the other alternatives. The No-action Alternative, therefore, would have a minor impact on increased sedimentation and erosion levels.

Under the No-action Alternative, sedimentation and erosion in the three-county region would be affected by continuing regional population growth and development. This alternative, however,

would not generate the development levels associated with Alternatives 2, 3, 4, and 5 and, therefore, would not have as much of an impact on erosion.

4.2.2 Impacts on Extractable Resources

The potential direct impact of the Proposed Action and its alternatives could be the loss of extractable resources occurring when project development encroaches on areas with mineral or energy production value. Neither the Proposed Action nor the alternatives would have a direct impact on the availability of extractable mineral or fuel deposits. No surface mine operations occur in the vicinity of the sites of the Proposed Action or its alternatives and there are no active oil and gas leases of state minerals in offshore waters. The Proposed Action and its alternatives would not, therefore, physically interfere with foreseeable mining, exploration, or drilling activity.

The potential indirect impact of the Proposed Action and its alternatives could be the loss of extractable resources resulting from the encroachment of secondary development in areas with mineral or energy value throughout the three counties. Surface mining and oil and gas production, however, generally occur in upland areas of the three-county region and in waters south of the coastal shoreline. Growth associated with the alternatives, therefore, would be unlikely to encroach on geologic resources. Additionally, market forces would likely prevent development in those areas with valuable geologic resources. No cumulative impacts are anticipated.